

26, 31, 32, 33, 36, 40, and 41, these claims are amended to positively recite features of the invention which distinguish even further over the prior art of record, as discussed in greater detail below. A clean version of the amended claims is provided in the attached Appendix.

Claims 25, 33, and 41 are amended to recite that "each of the M or P laser beams has (having) a (an) different unconstrained wavelength," where the portions in brackets () are indicative of claims 33 and 41. Support for this recitation is found by negative implication, in that there is not positive control on the wavelength(s) produced by the laser diode (array). In contrast, the Casey reference discloses feedback control mechanism used to control the wavelength of each beam. In addition, claims 26, 31, and 36 recite bandedge dichroic filters, i.e., high or low pass filters. Support for this limitation can be found at, for example, column 8, lines 2-3.

Applicants are grateful for the Examiners confirmation that Claims 1-24 contain allowable subject matter.

The Office Action rejected all of Claims 25-41 under 35 U.S.C. §251 as attempting improper recapture of broadened claimed subject matter surrendered in the application upon which the present reissue application is based. This rejection is respectfully traversed, for all of the reasons enumerated below.

M.P.E.P. §1412.02 states that a reissue will not be granted to recapture claimed subject matter which was surrendered in an application to obtain the original patent. In *In re Clement*, 131 F.3d 1464, 45 U.S.P.Q.2d 1161 (Fed. Cir.1997), the Court of Appeals for the Federal Circuit set forth guidance for recapture as follows:

The first step in applying the recapture rule is to determine whether and in what aspect the reissue claims are broader than the patent claims. For example, a reissue claim that deletes a limitation or element from the patent claims is broader in that limitation's aspect....

The second step is to determine whether the broader aspects of the reissue claims relate to surrendered subject matter. To determine whether an applicant surrendered particular subject matter, we look to the prosecution history for arguments and changes to the claims made in an effort to overcome a prior art rejection.

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If the limitation now being omitted or broadened in the present reissue was originally presented/argued/stated in the original application to make the claims allowable over a rejection or objection made in the original application, the omitted limitation relates to subject matter previously surrendered by applicant, and impermissible recapture exists. However, since the patent for which the instant reissue is sought was allowed by way of a first action allowance, i.e., there were no rejections or objections of any claims at the time that the Notice of Allowability was issued, Applicants could not have surrendered any subject matter. 35 U.S.C. §251 would be a hollow instrument indeed if the Applicants could be precluded from obtaining a reissue simply because the Examiner, as he did in this case, paraphrases the claims under a heading of "Reasons for Allowance" in the Notice of Allowability.

M.P.E.P. §1412.02 provides examples of fact patterns that allegedly demonstrate attempts to recapture surrendered subject matter. These examples are as follows:

- (A) A limitation of the patent claims is omitted in the reissue claims. This omission provides a broadening aspect in the reissue claims, as compared to the claims of the patent. **The omitted limitation was originally argued in the original application to make the application claims allowable over a rejection or objection made in the application.** Thus, the omitted limitation relates to subject matter previously surrendered, in the original application.
- (B) **The limitation omitted in the reissue was added in the original application claims for the purpose of making the claims allowable over a rejection or objection made in the application.** Even though applicants made no argument on the record that the limitation was added to obviate the rejection, the nature of the addition to the claim can show that the limitation was added in direct reply to the rejection. This too will establish the omitted limitation as relating to subject matter previously surrendered.
- (C) The limitation A omitted in the reissue claims was present in the claims of the original application. **The examiner's reasons for allowance in the original application stated that it was that limitation A which distinguished over a potential combination of references X and Y.** Applicant did not present on the record a counter statement or comment as to the examiner's reasons for allowance, and permitted the claims to issue. The omitted limitation is thus established as relating to

subject matter previously surrendered.

It will be appreciated that a brief review of the file wrapper will reveal that none of the fact patterns are applicable in the instant case. With respect to example (A), while the omitted limitations were present in the allowed claims, Applicants did not argue that any limitation distinguished the claims over a prior art reference; the application was allowed in the first Office Action. With respect to example (B), Applicants did not add any limitations responsive to a prior art rejection; the application was subject to a First Action Allowance. Regarding example (C), the Examiner did not indicate that any particular limitation distinguished over any prior art reference; the application was allowed on a first Office Action.

Moreover, M.P.E.P. §1412.02 notes that any argument by the Applicants that the claim limitation defined over the rejection must have been specific as to the limitation; rather than a general statement regarding the claims as a whole. Applicants acquiescence to a summary of all limitations in the allowed independent claims cannot amount to more than a general statement that the claims are allowable; acquiescence can never be converted to a positive statement that a specific limitation is the *sine qua non* for allowance.

OK For all of the reasons set forth immediately above, the Examiner is respectfully requested to reconsider and withdraw the 35 U.S.C. §251 rejection of claims 25-41.

The Office Action rejects claims 25-27, 29-31, and 33-35 under 35 U.S.C. §102(b) as being anticipated by Casey (U.S. Patent No. 4,823,357). This rejection is respectfully traversed.

Applicants appreciate the fact that the Examiner has not had the opportunity to review claims 25, 26, 31, and 33 (as amended); Applicants will present detailed remarks regarding the patentability of these claims. Before doing so, Applicants present a summary of the applicable law regarding anticipation, which law was considered by Applicants' representative in generating the remarks which follow.

Anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim. See Connell v. Sears, Roebuck & Co., 220 U.S.P.Q. 193, 198

(Fed. Cir. 1983). Thus, an invention is anticipated if the same device, including all the claim limitations, is shown in a single prior art reference. Every element of the claimed invention must be literally present, arranged as in the claim. The identical invention must be shown in as complete detail as is contained in the patent claim. Thus, a rejection for anticipation or lack of novelty requires, as the first step in the inquiry, that all the elements of the claimed invention be described in a single reference. Richardson v. Suzuki Motor Co., 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989), *cert. denied*, 110 S.Ct. 154 (1989). Further, the reference must describe the applicant's claimed invention sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it. Akzo N.V. v. United States Int'l Trade Comm'n, 1 U.S.P.Q.2d 1241, 1245 (Fed. Cir. 1986), *cert. denied*, 482 U.S. 909 (1987); In re Coker, 175 U.S.P.Q. 26, 29 (C.C.P.A. 1972). In other words, anticipation requires that all of the elements and limitations of the claim are found within a single prior art reference. There must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention. See Scripts Clinic v. Genentech, Inc., 18 U.S.P.Q.2d 1001, 10 (Fed. Cir. 1991).

Independent claim 25, as amended, recites "M modules which generate M laser beams, wherein each of said M laser beams has a different unconstrained wavelength," the wavelength of the M laser beams are not feedback controlled. In contrast, Casey discloses a system in which the frequency of each laser beam generated by a laser diode is precisely controller by, for example, an etalon 405. See column 6, lines 12-24, and Fig. 4. Thus, Casey does not disclose the M modules as recited in claim 25.

Moreover, and in any event, Applicants strongly object to the logic artifice used in rejecting claim 25, since the analysis set forth in the Office Action bears no resemblance to the understanding that one of ordinary skill in the art would apply in considering the reference. Moreover, the rejection is not cogent. In particular, the Office Action alleges that five laser diodes T<sub>1</sub>-T<sub>5</sub> and three dichroic interference filters 101, 102, and 103 meet the limitations of claim 25 without providing any indication as to how these three filters can combine five laser beams. Claim 25 positively recites "M-2 dichroic filters, wherein each of said M-2 dichroic filters transmits a corresponding one of said M

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laser beams and reflects all other of said M laser beams into a predetermined optical path to produce said output beam.” Thus, the M-2 dichroic filters recited in claim 25 cooperate in producing the output laser beam from the M laser beams. Since one of ordinary skill in the art would not consider the operation of less than all of the dichroic interference filters 101, 102, 103, and 104, the fourth dichroic interference filter 104 cannot simply be ignored. Once the applied reference is considered in the same that one of ordinary skill in the art would consider the reference, it will be appreciated that Fig. 1 of the Casey reference does not disclose or suggest the LHA recited in claim 25.

With respect to claim 26, amended claim 26 now recites “M-R dichroic bandedge filters,” i.e., one of a lowpass or highpass filter. In contrast, Casey discloses that:

“The dichroic summing of the present invention is possible because of the availability of narrowband interference filters with extremely sharp transmission/reflection transitions. Narrowband interference filters are used instead of long or short wavelength bandpass filters because much steeper transmission slopes are available.”

See column 5, 10-26.

Since Casey does not disclose or suggest, but in fact teaches away, the dichroic bandedge filters as recited in claim 26, Casey cannot anticipate the invention recited in claim 26. It will be appreciated that dependent claims 27 and 29 and independent claim 31 cannot be anticipated based on identical reasoning.

With respect to claim 33, that claims has been amended to positively recite the steps of “(a) generating P collimated laser beams, each of the P collimated laser beams having an unconstrained wavelength within an Mth wavelength band” and “(b) repeating step (a) M times so as to produce MxP collimated laser beams grouped into M different wavelength bands.” As discussed with respect to claim 25, the Casey reference does not disclose or even suggest the laser beams having an unconstrained wavelength. Thus, since the applied reference does not disclose or suggest the limitations of claim 33, the applied reference cannot anticipate the invention recited in claim 33. Dependent claims 34 and 35 are allowable on identical reasoning.

For all of the reasons enumerated above, the Examiner is respectfully requested to reconsider

Applicant used language only M-2 dichroic

not convincing. unclear what is meant by bandedge

and withdraw the 35 U.S.C. §102(b) rejection of claims 25, 26, 31, and 33, and claims depending therefrom.

The Office Action also rejects claims 28, 32, and 36-41 under 35 U.S.C. §103(a) as being unpatentable over Casey. This rejection is respectfully traversed.

It is well settled that 35 U.S.C. §103(a) authorizes a rejection where to meet the claim, it is necessary to modify a single reference or to combine it with one or more other references. After indicating that the rejection is under 35 U.S.C. 103, the examiner should set forth in the Office action (1) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate, (2) the difference or differences in the claim over the applied reference(s), (3) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and (4) an explanation why such proposed modification would have been obvious to one of ordinary skill in the art at the time the invention was made. See M.P.E.P. §706.02(j).

Before demonstrating that the applied reference does not render claims 28, 32, and 36-41 obvious, Applicants must object to the rationale applied in developing the 35 U.S.C. §103(a) rejection. In particular, the Office Action cites column 2, e.g., 11-21, of Casey. Column 2, lines 3-33, discuss five patents, not of which are cited as a secondary reference. It is well settled that where a reference is relied on to support a rejection, whether or not in a minor capacity, that reference should be positively included in the statement of the rejection. See In re Hoch, 57 CCPA 1292, 428 F.2d 1341, 166 U.S.P.Q. 406, footnote 3 (1970).

Moreover, and in any event, it is well settled that claim interpretation is not conducted in a vacuum. "It is axiomatic that, in proceedings before the PTO, claims in an application are given their broadest reasonable interpretation consistent with the specification, and that claim language should be read in the light of the specification as it would be interpreted by one of ordinary skill in the art." In re Bond, 910 F.2d 831, 833, 15 U.S.P.Q.2d 1566, 1568 (Fed. Cir. 1990), citing In re Snead, 710 F.2d 1544, 1548, 218 U.S.P.Q. 385, 388 (Fed. Cir. 1983). However, it is also well settled that "It is impermissible within the framework of section 103 to pick and choose from any one reference only

so much of it as will support a given position to the exclusion of other parts necessary to a full appreciation of what such reference fairly suggests to one skilled in the art." Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, 796 F.2d 443, 488, 230 U.S.P.Q. 416, 419 (Fed. Cir. 1986), citing In re Wesslau, 353 F.2d 238, 241, 147 U.S.P.Q. 391, 393 (CCPA 1965), cert. denied, 484 U.S. 823 (1987). One of ordinary skill in the art, reading column 2, lines 34-38, of the Casey reference, would immediately recognize that while dichroic filters and optical fibers were known, Casey has unequivocally rejected the use of optical in free space laser communication systems. Thus, since the use of optical fiber would change the operating principal of the applied reference, there is no motivation for the modification proposed in the Office Action. It is well settled that if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. See M.P.E.P. §2143, *citing* In re Ratti, 270 F.2d 810, 123 U.S.P.Q. 349 (CCPA 1959).

In addition, there are several other passages of M.P.E.P. § 2143 that positively conclude that a "prima facie" case of obviousness cannot be established using the applied reference. For example, if proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. See In re Gordon, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984). Since Casey, on its face, indicates that optical fibers cannot be employed in the Casey free space communication system, Casey cannot render a system including a LHA formed, in part, from optical fiber, obvious. Moreover, in determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification. See In re Linter, 458 F.2d 1013, 173 U.S.P.Q. 560, 562 (CCPA 1972).

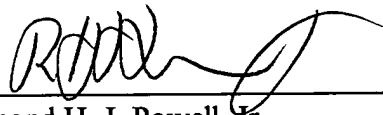
Turning to the applied rejection, all of claims 28, 32, and 36-41 recite either a fiber coupling device, a fiber coupling means, or a step of coupling MxP collimated laser beams into an *i*<sup>th</sup> optical

fiber. Since the Casey reference both teaches away from systems employing optical fiber and teaches that optical fibers are unsuited for use in spaceborne laser communications systems, the Casey reference cannot possibly render the inventive apparatuses and methods recited in claims 28, 32, and 36-41 obvious. For that reason, the Examiner is respectfully requested to reconsider and withdraw the 35 U.S.C. §103(a) rejection of claim 28, 32, and 36-41.

By this Amendment, Applicants have made a sincere effort to place the above-identified application in condition for immediate allowance. If the Examiner believes that a teleconference would be useful in expediting the prosecution of this application, the official is hereby invited to telephone the undersigned counsel to arrange for such a conference.

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# APPENDIX

25. A diode laser system, comprising:

a laser head assembly generating an output beam, the laser head assembly including:

M modules which generate M laser beams, wherein each of said M laser beams has a different unconstrained wavelength; and

M-2 dichroic filters, wherein each of said M-2 dichroic filters transmits a corresponding one of said M laser beams and reflects all other of said M laser beams into a predetermined optical path to produce said output beam,

where M is an integer  $> 2$ .

26. A diode laser system, comprising:

a laser head assembly which generates an output beam, the laser head assembly including:

M modules which generate M laser beams, wherein each of said M laser beams occupies a different wavelength band;

M-R dichroic bandedge filters, wherein each of said M-R dichroic bandedge filters transmits at least a respective one of said M laser beams occupying a given wavelength band and reflects all other of said M laser beams not occupying the given wavelength band; and

an optical device which combines said M laser beams to thereby produce said output beam,

wherein:

M and R are positive integers; and

M is an integer  $\geq 2$ .

31. A laser head assembly which generates an output beam including M laser beams,

comprising:

M modules generating M laser beams, wherein each of said M laser beams has a different single wavelength; and

M-2 dichroic bandedge filters, wherein each of said M-2 dichroic bandedge filters transmits a corresponding one of said M laser beams and reflects all other of said M laser beams;

wherein M is an integer  $> 2$ .

32. The laser head assembly as recited in claim 31, further comprising a fiber coupling device collecting said M laser beams to produce an output beam.

33. A method for generating a high energy laser beam, comprising:

(a) generating P collimated laser beams, each of the P collimated laser beams having an unconstrained wavelength within an Mth wavelength band;

(b) repeating step (a) M times so as to produce MxP collimated laser beams grouped into M different wavelength bands; and

(c) coupling said MxP collimated laser beams into an optical path to produce a high energy beam,

wherein M and P are integers  $\geq 2$ .

36. A diode laser system, comprising:

laser head assembly (LHA) which generates an output beam, the LHA including:

M modules generating M laser beams, wherein each of said M laser beams has a different single wavelength;

M-1 first dichroic bandedge filters defining an optical waveguide for directing all of said M laser beams into the optical path, wherein each of said M-1 bandedge dichroic filters transmits a corresponding one of said M laser beams and reflects all other said M laser beams; and

a fiber coupling device disposed adjacent to the optical path for collecting said M laser beams

to thereby produce an output beam;  
where M is an integer  $\geq 2$ .

40. A diode laser system, comprising:

first means for generating M first laser beams, wherein each of said M first laser beams has a different single wavelength;

M-1 first filter means defining a first optical waveguide for directing all of said M first laser beams into a first optical path, wherein each of said M-1 filter means transmits a corresponding one of said M first laser beams and reflects all other said M first laser beams;

second means for generating M second laser beams, wherein each of said M second laser beams has a different single wavelength;

M-1 second filter means defining a second optical waveguide for directing all of said M second laser beams into a second optical path, wherein each of said M-1 second filter means transmits a corresponding one of said M second laser beams and reflects all other said M second laser beams;

polarization combining means disposed at the intersection of said first and second optical paths for coupling said M first and said M second laser beams into said second optical path to thereby produce 2M polarization coupled laser beams; and

fiber coupling means disposed adjacent to said second optical path for collecting said 2M polarization coupled laser beams to thereby produce an output laser beam,

wherein M is an integer  $\geq 2$ .

41. A method for generating a high energy laser beam, comprising:

(a) generating P collimated laser beams, each of the P collimated laser beams having an unconstrained wavelength within an Mth wavelength band;

(b) repeating step (a) M times so as to produce MxP collimated laser beams grouped into M different wavelength bands;

(c) coupling said MxP collimated laser beams into an optical path; and

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PATENT APPLICATION

AMENDMENT UNDER 37 C.F.R. §§1.115 AND 1.121

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(d) coupling said  $M \times P$  collimated laser beams into an  $i$ th optical fiber to thereby produce a corresponding  $i$ th output laser beam, where  $i = 1$  to  $N$ ;  
where  $M$ ,  $N$  and  $P$  are positive integers and both  $M$  and  $P \geq 2$ .

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